



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Date: July 17, 1995

In reply refer to: A-95-77 and -78

Honorable David R. Hinson
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On July 2, 1994, about 1843 eastern daylight time, a Douglas DC-9-31, N954VJ, operated by USAir, Inc., as flight 1016, collided with trees and a private residence near the Charlotte/Douglas International Airport (CLT), Charlotte, North Carolina, shortly after the flightcrew executed a missed approach from the instrument landing system approach to runway 18R. The captain, first officer, one flight attendant, and one passenger received minor injuries. Two flight attendants and 14 passengers sustained serious injuries. The remaining 37 passengers received fatal injuries. The airplane was destroyed by impact forces and a postcrash fire. Instrument meteorological conditions prevailed at the time of the accident, and an instrument flight rules (IFR) flight plan had been filed. Flight 1016 was being conducted under 14 Code of Federal Regulations (CFR) Part 121 as a regularly scheduled passenger flight from Columbia, South Carolina, to Charlotte.¹

The National Transportation Safety Board has determined that the probable causes of the accident were: 1) the flightcrew's decision to continue an approach into severe convective activity that was conducive to a microburst; 2) the flightcrew's failure to recognize a windshear situation in a timely manner; 3) the flightcrew's failure to establish and maintain the proper airplane attitude and thrust setting necessary to escape the windshear; and 4) the lack of real-time adverse weather and windshear hazard information dissemination from air traffic control

¹For more detailed information, read Aircraft Accident Report -- "Flight Into Terrain During Missed Approach, USAir Flight 1016, DC-9-31, N954VJ, Charlotte/Douglas International Airport, Charlotte, North Carolina, July 2, 1994" (NTSB/AAR-95/03)

(ATC), all of which led to an encounter with and failure to escape from a microburst-induced windshear that was produced by a rapidly developing thunderstorm located at the approach end of runway 18R.

Contributing to the accident were: 1) the lack of ATC procedures that would have required the controller to display and issue airport surveillance radar (ASR-9) weather information to the pilots of flight 1016; 2) the Charlotte tower supervisor's failure to properly advise and ensure that all controllers were aware of and reporting the reduction in visibility and the runway visual range value information, and the low level windshear alerts that had occurred in multiple quadrants; 3) the inadequate remedial actions by USAir to ensure adherence to standard operating procedures; and 4) the inadequate software logic in the airplane's windshear warning system that did not provide an alert upon entry into the windshear.

About 1845, the CLT ATC tower activated the "crash phone" linked to the airport fire station (Station 17) and indicated that "we lost a plane on radar - 5 - 5 SOB [Souls on Board]." Eight fire fighters responded with three aircraft rescue and fire fighting (ARFF) trucks (Blaze 1, 2, and 7), and one quick response and command truck (Blaze 5) from the fire station located near the base of the ATC tower. Several fire fighters stated that at the time the equipment was dispatched "it was raining very hard."

The initial notification to the fire station by the ATC tower did not identify any particular location of the downed aircraft because of the restricted visibility; thus, the fire equipment traversed the airport, via taxiway A, searching for evidence of an accident. At 1846:09, the ATC ground controller notified the crew in Blaze 5 "we have a large area of smoke visible from the tower, now it appears to be approximately a quarter mile north of the old hangar that CCAir is using...."

Simultaneous to the ground controller's transmission, the crew of Blaze 5 heard a transmission from the City alarm room indicating that there was a "possible plane crash in the vicinity of Wallace Neel and Old Dowd." The ATC ground controller contacted the crew of Blaze 5 and stated that there were "five zero souls, plus five crew on board." The fire equipment vehicles crossed the airport, and two of the vehicles exited the airport property through a security gate (gate 36) operated by a magnetic key card. The two remaining vehicles were delayed because of difficulties opening gate 36; in fact, they "crashed" through the gate and proceeded to the accident site.

About 4 minutes after the Charlotte ARFF units arrived on scene, the Charlotte Fire Department units arrived at the accident site. The fire fighting efforts proceeded for approximately 5 minutes, using water and aqueous film-forming foam as the extinguishing agents.

The Safety Board is concerned that the response of the ARFF units was delayed because of difficulties experienced in opening airport security gate 36. The Airport Authority later determined that the gate had been functioning properly but had failed to open because the ARFF personnel had passed their magnetic cards through the card readers too quickly.

While the solution to this problem would be for emergency response personnel to pass the gate cards through the card reader more slowly, the ARFF Incident Commander testified at the Safety Board's public hearing that when the gate did open, it did so very slowly. The Safety Board believes that passing a gate card through a card reader too quickly by emergency response personnel, who would normally be anxious and hurried while responding to a disaster, is understandable. However, response time is critical in fighting fires, especially aircraft fires. The time lost in repeatedly trying to open a gate, and then waiting for the gate to retract to the open position, could jeopardize lives.

The Safety Board acknowledges that fences and restricted gate access are required for security at airports; however, devices used to provide this security should not interfere with an expeditious response by emergency personnel. Therefore, the Safety Board believes that the Federal Aviation Administration (FAA) should require that all airports certificated under 14 CFR Part 139 identify gates that ARFF personnel and their equipment might need to access while responding to emergencies. Further, the FAA should require the necessary changes to ensure that ARFF personnel and their equipment can pass through these gates without hesitation or delay. Additionally, the gates that are identified and the procedures required to access them should be included in the Airport Emergency Plan.

The Safety Board is also concerned that CLT remained open and that air carrier operations continued for about 30 minutes after ARFF personnel and equipment were involved in fire fighting and rescue activities at the accident site. Although ARFF units were in close proximity to the airport and could have responded immediately to another emergency, the Safety Board found that all the available ARFF units and personnel were involved in the fire fighting and extrication efforts of USAir flight 1016. As a result, fire extinguishing materials were significantly diminished. The Safety Board believes that if another aircraft

emergency had occurred at the airport, it would have been extremely difficult for ARFF units to respond in a timely and effective manner.

About 2203, on November 22, 1994, Trans World Airlines flight 427, providing scheduled 14 CFR Part 121 service between St. Louis, Missouri, and Denver, Colorado, collided with a Cessna 441, N441KM, at the intersection of runway 30R and taxiway R, at the Lambert-St. Louis International Airport, Bridgeton, Missouri. Flight 427, a McDonnell Douglas DC-9-82, N954U, sustained substantial damage during the collision. The 2 flight crewmembers, an additional crewmember in the cockpit jumpseat, 5 flight attendants, and 124 of the 132 passengers on board evacuated the airplane without injury. The Cessna 441, operated by Superior Aviation Inc., was destroyed, and the commercial pilot and the passenger, who was a rated private pilot, received fatal injuries. The accident occurred during the hours of darkness, and visual meteorological conditions prevailed. Both flights were operating on IFR flight plans. The Cessna was holding in position awaiting takeoff clearance for an intended 14 CFR Part 91 positioning flight to Iron Mountain, Michigan.

Although the accident is still under investigation, the Safety Board found that Lambert-St. Louis International Airport remained open after the accident, and that aircraft movement continued near the accident site. Several radio transmissions to the ATC ground controller from pilots of taxiing airplanes revealed that they were concerned about the possibility of passengers from the accident flight wandering into the paths of taxiing airplanes. After receiving these transmissions, the ground controller stopped aircraft movement in the area. Shortly thereafter, all ground movement on the airport was halted.

The Safety Board believes that because the airport was not closed immediately following the accident, the potential for injury to the evacuated passengers by taxiing airplanes was high. Closing the airport would have allowed controllers to assess the situation and to redirect both airborne and taxiing traffic to areas of the airport that were remote from the accident site. The assessment period could have been brief, and the airport could have been reopened after safe conditions were confirmed by the airport operator.

Therefore, the Safety Board believes that the FAA should provide guidance to all airports certificated under 14 CFR Part 139 that in the event of an accident or significant incident, the airport be closed immediately by either the airport operator and/or the appropriate FAA air traffic facilities through letters of agreement with airport operators. In addition, airports, or portions thereof, should not be reopened until the airport

operator has ensured that: (1) aircraft operating areas are secure; (2) aircraft movement areas that are to be reopened have been properly inspected; and (3) adequate ARFF protection is available for aircraft operations.

Therefore, as a result of its investigation of these accidents, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Require that all 14 CFR 139 certificated airports identify gates that aircraft rescue and fire fighting personnel and their equipment might need to access while responding to emergencies, and make the necessary changes to ensure that emergency personnel and their equipment can pass through these gates without hesitation or delay. Additionally, the gates that are identified and the procedures required to access them should be included in the Airport Emergency Plan. (Class II, Priority Action) (A-95-77)

Provide guidance to all 14 CFR 139 certificated airports that in the event of an accident or significant incident, the airport be closed immediately by either the airport operator and/or the appropriate FAA air traffic facilities through letters of agreement with airport operators. Also, specify that the airport, or portions thereof, should not be reopened until the airport operator has ensured that: (1) aircraft operating areas are secure; (2) aircraft movement areas that are to be reopened have been properly inspected; and (3) adequate aircraft rescue and fire fighting protection is available for aircraft operations. (Class II, Priority Action) (A-95-78)

Chairman HALL, Vice Chairman FRANCIS, and Member HAMMERSCHMIDT concurred in these recommendations.

By:


Jim Hall
Chairman

